SANYO

720

SANYO
PORTABLE RADIO
RP8300UM
SERVICE MANUAL

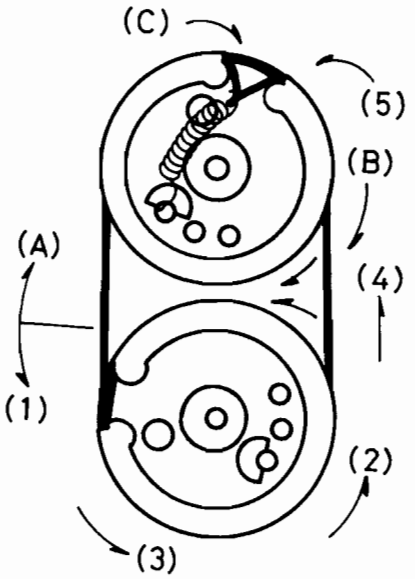
A PRODUCT OF SANYO ELECTRIC CO., LTD.

720

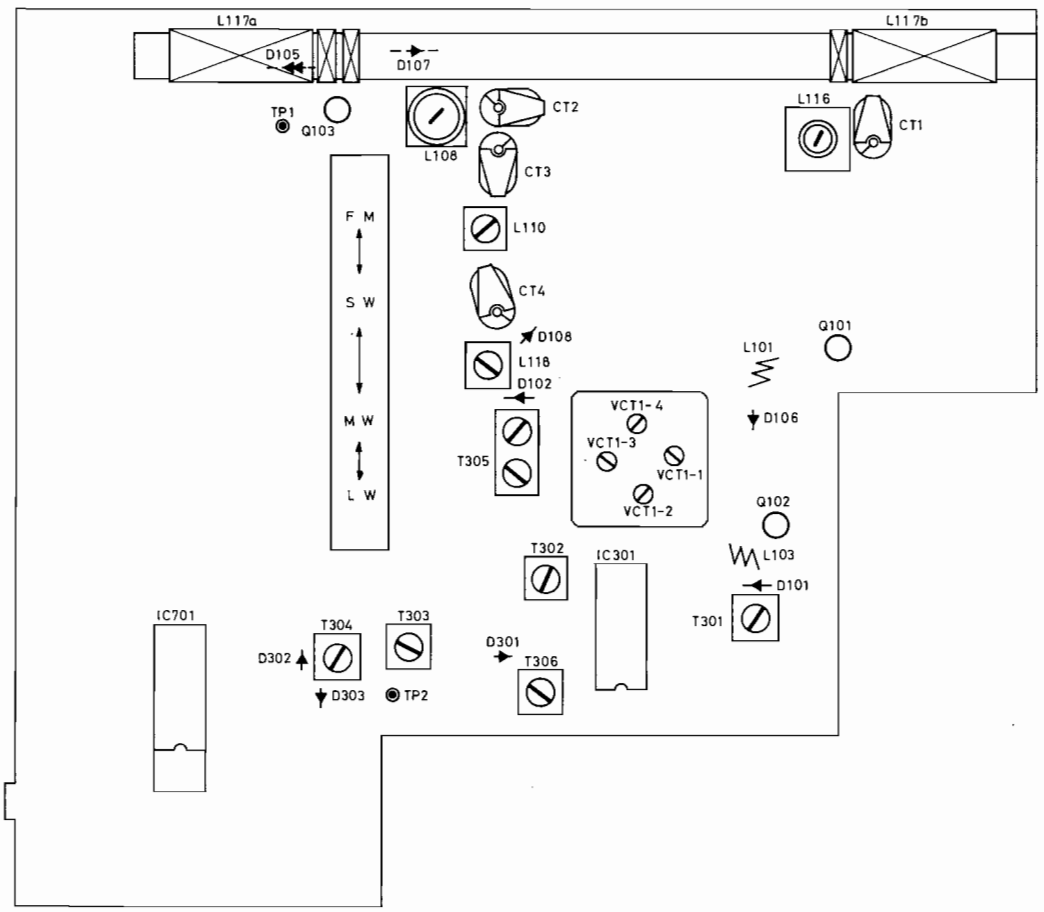
SPECIFICATIONS

Frequency Ranges:	LW 150 – 350 KHz MW 510 – 1605 KHz SW 5.95 – 18.0 MHz FM 87.5 – 108 MHz		
Intermediate Frequency:	AM 460 KHz FM 10.7 MHz		
IC:	IC301	LA1201	FM/AMIF
FET:	IC701	LA4101	AUDIO
Transistors:	Q101	2SC930	FM RF Amp.
	Q102	2SC930	FM Converter
	Q103	2SC930	AM Converter
Diodes:	D101	1S188FM	FM Limiter
	D102	1S188AM	AM Limiter
	D105	MV11T	AM Limiter
	D106	DS442	FM Limiter
	D107	DS442	SW Limiter
	D108	DS442	LW Limiter
	D301	DS442	AM Detector
	D302	1S188FM	FM Discriminator
	D303	1S188FM	FM Discriminator
	D701	DS17	Rectifier
	D702	DS18	Rectifier
Sensitivity (for 50mW output):	MW 63μV/m LW 316μV/m SW 14μV/m FM 5μV S/N = 30dB		
Power Output:	Maximum 1800mW Undistorted 1200mW		
Power Source:	DC; 7.5V for 1.5V "C" Size x 5 AC; 115/230V 50 Hz 8W		
Current Drain:	No signal 30mA Maximum 350mA		
Speaker:	10cm Permanent Dynamic Speaker 4 ohm		
Dimensions:	186mm (W) x 213mm (H) x 70mm (D)		
Weight (without batteries):	1150 g (approx.)		

DIAL CORD STRINGING



PARTS LOCATION



ALIGNMENT PROCEDURES

GENERAL ALIGNMENT CONDITIONS

1. The position of volume control is at maximum position.
2. Signal input must be kept as low as possible to avoid overload.
3. Use an output meter of the highest possible sensitivity.
4. Standard modulation is 400 Hz at 30% amplitude (for AM) and 22.5 kHz deviation (for FM).

MW BAND – Band selector switch in MW position.

Step	Connection of Signal Gen.	Input Signal Frequency	Dial Setting of Radio	Connection of Output Meter	Adjust	Remarks
1	Loop Antenna	460 kHz	Lowest End	Across Speaker	IFT T305, 306	Adjust for Maximum
2	Same	505 kHz	Lowest End	Same	Osc. Coil L110	Same
3	Same	1650 kHz	Highest End	Same	Osc. Trim CT-3	Same
4	Same	600 kHz	600 kHz	Same	Ant. Coil L117b	Same
5	Same	1400 kHz	1400 kHz	Same	Ant. Trim. VCT1-3	Same

Repeat steps 2 thru 5 to obtain maximum sensitivity.

LW BAND – Band selector switch in LW position.

Step	Connection of Signal Gen.	Input Signal Frequency	Dial Setting of Radio	Connection of Output Meter	Adjust	Remarks
1	Loop Antenna	145 kHz	Lowest End	Across Speaker	Osc. Coil L118	Adjust for Maximum
2	Same	365 kHz	Highest End	Same	Osc. Trim CT-4	Same
3	Same	160 kHz	160 kHz	Sme	Ant. Coil L117a	Same
4	Same	340 kHz	340 kHz	Same	Ant. Trim VCT1-4	Same

Repeat steps 1 thru 4 to obtain maximum sensitivity.

SW BAND – Band selector switch in SW position

Step	Connection of Signal Gen.	Input Signal Frequency	Dial Setting of Radio	Connection of Output Meter	Adjust	Remarks
1	Loop Antenna	5.8 MHz	Lowest End	Across Speaker	Osc. Coil L108	Adjust for Maximum
2	Same	19.0 MHz	Highest End	Same	Osc. Trim. CT-2	Same
3	Same	7.0 MHz	7.0 MHz	Same	Ant. Coil L116	Same
4	Same	18.0 MHz	18.0 MHz	Same	Ant. Trim. CT-1	Same

Repeat steps 1 thru 4 to obtain maximum sensitivity.

FM BAND – Band selector switch in FM position

Step	Connection of Signal Gen.	Input Signal Frequency	Dial Setting of Radio	Connection of Meter or **Oscilloscope**	Adjust	Remarks
1	Connect Sweep Marker Generator to TP1, Ground	10.7 MHz	Lowest End	Connect scope input cable thru network to TP2, Ground	IFT T301, 302, 303	Adjust for maximum sensitivity with symmetrical curve.
2	Same	10.7 MHz	Lowest End	Connect scope input cable thru network to R318, Ground	IFT T304	Adjust for symmetrical "S" cruve.
3	Connect Signal Generator to TP1, Ground	87.0 MHz	Lowest End	Connect V.T.V.M. across speaker	Osc. Coil L103	Adjust for Maximum
4	Same	108.0 MHz	Highest End	Same	Osc. Trimmer VCT1-2	Same
5	Same	90 MHz	90 MHz	Same	RF Coil L101	Same
6	Same	106 MHz	106 MHz	Same	RF Trimmer VCT1-1	Same

Repeat steps 1 thru 6 to obtain maximum sensitivity.

PARTS LIST

Key No.	Part No.	Description	Q'ty
PACKING			
	141-6-411T-72702	Instruction Book, English	1
	141-6-141T-07903	Individual Carton	1
	141-6-144T-26400	Pad, Top	1
	141-6-144T-26500	Pad, Bottom	1
	141-2-176T-05900	Band	1
	141-6-472T-05602	Caution Label, Voltage	1
		Polyethylene Bag, 250x350mm, Set	1
		Polyethylene Bag, 60x250mm, Cord	1
	141-6-411T-81700	Instruction Book, Swedish	1
CABINET & CHASSIS			
	141-0-111T-252914	Cabinet Assembly	1
	141-0-126T-159913	Back Lid Assembly	1
	141-0-128T-085910	Battery Lid Assembly	1
	123-2-378R-10500	Bracket, Speaker	3
	141-2-163T-28000	Rotary Knob, TUNING	1
	123-2-262R-10100	Bracket Knob, TUNING	1
	141-2-164T-12200	Slide Knob, VOLUME/TONE	2
	141-2-164T-12250	Slide Knob, POWER	1
	123-2-241R-10900	Veil, Power Switch	1
	141-2-163T-30600	Rotary Knob, FINE TUNING	1
		Felt Cushion, 15x20x12mm, Speaker	1
	141-6-476T-04000	Indication Label, Fuse	1
	141-0-747T-121910	Bracket Lever Assembly, Band Select	1
	141-2-146T-06203	Dial Scale	1
	141-2-365T-31000	Bracket Switch, P.C.B., mtg.	1
	141-2-566T-03200	Tuning Shaft	1
	141-2-581T-03000	Gear, Tuning Shaft mtg.	1
	141-0-566T-02700	Tuning Shaft Assembly	1
	141-2-421T-14700	Special Screw, Dial mtg.	1
	141-2-464T-13900	Fixer, Special Screw mtg.	1
	123-2-538R-11800	Drum	2
	123-2-481R-11000	Spring Coil, Dial Rope	1
		Dial Rope, 0.3φx500mm	1
		Sheet, 5x26mm, Bracket Switch	1
		Sheet, 10x10mm, Antenna Lead	1
	123-2-376R-10600	Spacer, Tuning Capacitor - Drum	1
	141-2-741T-84800	Lever, Band Select	1
	141-2-569T-01000	Guide Shaft, Band Select Switch	1
		Tapping Screw, Pan Hd., 3x30mm, Back Lid mtg.	3
		Tapping Screw, Pan Hd., 3x8mm, Back Lid mtg.	1
SEMICONDUCTORS, COILS & TRANSFORMERS			
IC301		Integrated Circuit, LA1201 Violet	1
IC701		Integrated Circuit, LA4101	1
Q101		Transistor, 2SC930E	1
Q102,103		Transistor, 2SC930D	2
D101,302, 303		Diode, 1S188FM	3
D102		Diode, 1S188AM	1
D105		Diode, MV11T	1
D106,107, 108,301		Diode, DS442	4
D701		Diode, DS17	1
D702		Diode, DS18	1
L101	4-265R-12000	VHF Coil, 3½	1
L102	4-265R-05000	VHF Coil, 6½	1
L103	4-265R-10500	VHF Coil, 3½	1
L104	4-253R-11160	Choke Coil	1
L108	4-258T-08300	Oscillator Coil	1
L110	4-258R-28131	Oscillator Coil	1
L115	4-252T-05900	Choke Coil	1

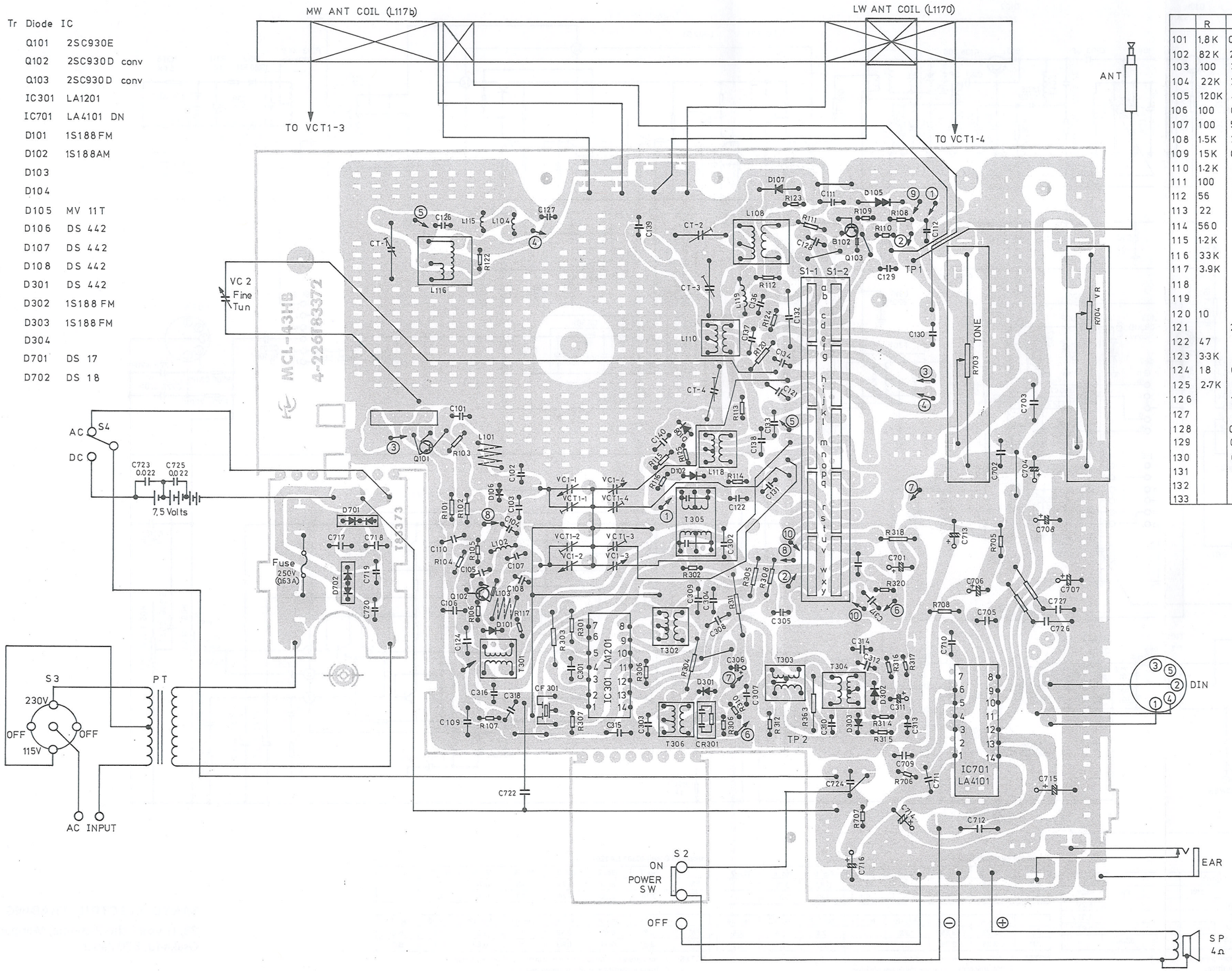
Key No.	Part No.	Description	Q'ty
SEMICONDUCTORS, COILS & TRANSFORMERS			
L116	4-257T-13100	Antenna Coil	1
L117	4-257T-17501	Antenna Coil Assembly	1
L118	4-258R-28231	Oscillator Coil	1
L119	4-265R-12600	VHF Coil, 12½	1
T301	4-256R-20830	IF Transformer, FM	1
T302	4-256R-19530	IF Transformer, FM	1
T303	4-256R-15130	IF Transformer, FM	1
T304	4-256R-02330	IF Transformer, FM	1
T305	4-256R-80730 or 4-256R-80710	IF Transformer, AM	1
T306	4-256R-00230	IF Transformer, AM	1
T701	4-251T-49400	Power Transformer	1
MISCELLANEOUS			
BPF	4-253T-08700	Filter	1
CF301	4-256T-80400 / 4-256T-80471 / 4-256T-80472 / 4-256T-80473 / 4-256T-80474	IF Filter, FM	1
	4-151T-18700	Speaker, 100mm, 4ohm	1
S1	4-231T-51800	Switch, Band Select	1
S2	4-231T-12371	Switch, Power	1
S3	4-231T-37604	Switch, 115/230V	1
S4	4-235T-26900	Socket, AC/DC	1
	141-2-135T-32200	Back Cover, AC/DC Socket mtg.	1
	4-235T-29971	Socket, Earphone	1
	4-235T-23100	Socket, DIN	1
	4-237T-00100	Terminal, Test Point	3
	4-243T-77900	Power Cord Assembly	1
	4-227T-01500	CR Pack	1
B101,102	123-2-471R-10400	Bead Core	2
	141-2-322T-26900	Shield Plate, IC301	1
	123-2-472R-11100	Lug, Rod Antenna	1
	123-2-474R-00200	Tip Plug, Speaker, Antenna	3
	4-234T-02100	Fuse, 0.63A	1
	141-2-381T-01800	Bracket Fuse	2
	141-2-464T-08700	Fixer, Lead mtg.	1
	141-2-472T-01001	Lug, Lead mtg.	1
	4-226T-833910	P.C.B., Assembly	1
	4-226T-833911	P.C.B., Assembly	1
	4-243T-12971	Lead, 150mm, Speaker	1
	4-243T-12972	Lead, 200mm, Antenna	1
	123-2-472R-00400	Lug, Fine Tuning	1
	4-244T-80100	Telescopic Rod Antenna	1
RESISTORS			
	All Resistors are Carbon P-type ¼W, ±10% unless otherwise noted.		
R120		10Ω	1
R124		18Ω	1
R113		22Ω	1
R122		47Ω	1
R112		56Ω	1
R307		68Ω	1
R103,106, 107,111, 301,303, 312		100Ω	7
R705		120Ω	1
R304,708		150Ω	2
R313		470Ω	1
R114		560Ω	1
R306,311, 314,315, 318,707		1KΩ	6
R110,115		1.2KΩ	2
R08,308		1.5KΩ	2
R101		1.8KΩ	1
R125		2.7KΩ	1
R123		3.3KΩ	1
R117		3.9KΩ	1
R310,316, 317,320		5.6KΩ	4
R309		8.2KΩ	1

PARTS LIST

Key No.	Part No.	Description	Q'ty
RESISTORS			
R302		10KΩ	1
R109,706		15KΩ	2
R116		33KΩ	1
R305		47KΩ	1
R102		82KΩ	1
R105		120KΩ	1
R701,702		220KΩ	2
R104		2.2K ohm	1
R703,704	4-222T-45500	Variable Resistor, 50KΩ "D" VOLUME/TONE	1
CAPACITORS			
C103		Ceramic, 3pF, ±0.5pF, 50V	1
C107		Ceramic, 5pF, ±0.5pF, 50V	1
C126,139		Ceramic, 10pF, ±10%, 50V	2
C131		Ceramic, 13pF, ±10%, 50V	1
C102,134		Ceramic, 20pF, ±10%, 50V	2
C108		Ceramic, 20pF, ±5%, 50V	1
C104		Ceramic, 25pF, ±10%, 50V	1
C310		Ceramic, 30pF, ±10%, 50V	1
C127		Ceramic, 47pF, ±10%, 50V	1
C140		Ceramic, 80pF, ±10%, 50V	1
C303		Ceramic, 100pF, ±20%, 50V	1
C710		Ceramic, 220pF, ±20%, 50V	1
C105,702, 726,727		Ceramic, 470pF, ±20%, 50V	4
C711		Ceramic, 560pF, ±20%, 50V	1
C106,110, 111,124, 301,304, 307,717, 718,719, 720		Ceramic, 0.01μF, +80—20%, 50V	11
C101,112, 317,723, 724,725, 722		Ceramic, 0.022μF, +80—20%, 50V	7
C705		Mylar, 560pF, ±20%, 50V	1
C316		Mylar, 820pF, ±20%, 50V	1
C312,313		Mylar, 0.001μF, ±20%, 50V	2
C305		Mylar, 0.0022μF, ±20%, 50V	1
C137,314		Mylar, 0.0033μF, ±20%, 50V	2
C128,129, 136		Mylar, 0.0047μF, ±20%, 50V	3
C130,138, 302,308, 709		Mylar, 0.01μF, ±20%, 50V	5
C109,309, 315,318		Mylar, 0.022μF, ±20%, 50V	4
C703		Mylar, 0.068μF, ±20%, 50V	1
C712		Mylar, 0.1μF, ±20% 50V	1
C133		Styrol, 165pF, ±5%, 50V	1
C121		Styrol, 270pF, ±5%, 50V	1
C132		Styrol, 3100pF, ±5%, 50V	1
C701,704		Electrolytic, 1μF, 10V	2
C311		Electrolytic, 4.7μF, 6.3V	1
C306		Electrolytic, 10μF, 6.3V	1
C706		Electrolytic, 33μF, 6.3V	1
C707,708, 714		Electrolytic, 220μF, 10V	3
C716		Electrolytic, 470μF, 10V	1
C715		Electrolytic, 2200μF, 10V	1
C713		Electrolytic, 1000μF, 10V	1
VC1-4	4-224R-08400	Tuning Capacitor	1
VC2	4-224R-20100	Fine Tuning Capacitor	1
CT1-3	4-224R-01400	Trimmer, 8pF	3
CT4	4-224R-01600	Trimmer, 16pF	1

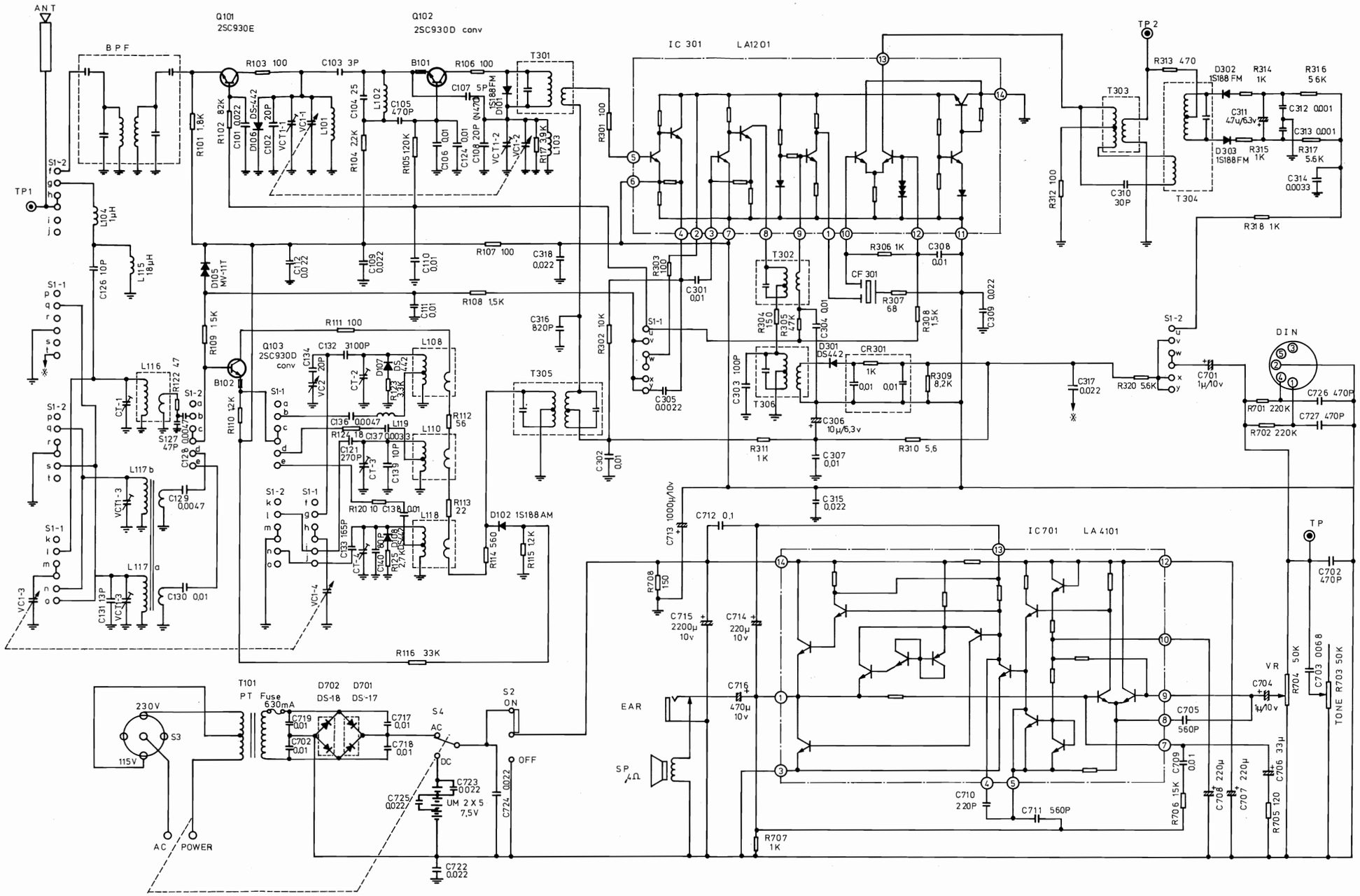
MEMO

Tr	Diode	IC
Q101	2SC930E	
Q102	2SC930D conv	
Q103	2SC930D conv	
IC301	LA1201	
IC701	LA4101 DN	
D101	1S188FM	
D102	1S188AM	
D103		
D104		
D105	MV 11T	
D106	DS 442	
D107	DS 442	
D108	DS 442	
D301	DS 442	
D302	1S188 FM	
D303	1S188 FM	
D304		
D701	DS 17	
D702	DS 18	



	R	C	NO	R	C	NO	R	C
101	1.8K	0.022	301	100	0.01	701	220K	1μ/10v
102	82K	20P	302	10K	0.01	702	220K	470P
103	100	3P	303	100	100P	703	VR50K	0.068
104	22K	25P	304	150	0.01	704	VR50K	1μ/10v
105	120K	470P	305	47K	0.0022	705	120	560P
106	100	001	306	1K	10μ/6.3v	706	15K	33μ/6.3v
107	100	5P	307	68	0.01	707	1K	220μ/10v
108	1.5K	20P(N470)	308	1.5K	0.01	708	150	220μ/10v
109	15K	0.022	309	8.2K	0.022	709		0.01
110	1.2K	0.01	310	5.6K	30P	710		220P
111	100	0.01	311	1K	47μ/6.3v	711		560P
112	56	0.022	312	100	0.001	712		0.1
113	22		313	470	0.001	713		1000μ/10v
114	560		314	1K	0.0033	714		220μ/10v
115	1.2K		315	1K	0.022	715		2200μ/10v
116	33K		316	5.6K	820P	716		470μ/10v SPL
117	3.9K		317	5.6K	0.022	717		0.01
118			318	1K	0.022	718		0.01
119			319			719		0.01
120	10		320	5.6K		720		0.01
121		270P	321			721		
122	47		322			722		0.022
123	3.3K		323			723		0.022
124	18	0.01				724		0.022
125	2.7K					725		0022
126		10P	134		20P	726		470P
127		47P	135			727		470P
128		0.0047	136		0.0047			
129		0.0047	137		0.0033			
130		0.01	138		0.01			
131		13P	139		10P			
132		3100P	140		80P			
133		165P	141					

SCHEMATIC DIAGRAM



	Q101		Q102			Q103		
	FM	MW		FM	MW		FM	MW
C:	5.85V		C:	5.85V		C:		6.2V
B:	2.61V		B:	2.0V		B:		1.31V
E:	1.89V		E:	1.38V		E:		0.67V
CC:	990μA		CC:	800μA		CC:	330μA	

NOTES: 1. All voltages are measured from common positive (–) ground.
2. Volume control is at the minimum position.

Integrated Circuit IC701 LA4101

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
FM	3.85	–	0	5.1	0.82	3.82	–
AM	3.85	–	0	5.1	0.82	3.82	–

	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14
FM	3.21	3.85	3.9	–	7.4	7.4	7.5
AM	3.21	3.85	3.9	–	7.4	7.4	7.5

NOTES: 1. All voltages are measured from common positive (–) ground.
2. Volume control is at the minimum position.

Integrated Circuit IC301 LA1201

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
FM	1.75	3.17	0.73	1.43	0.74	0	0
AM	2.18	3.20	0.74	1.43	0.74	0	0

	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14
FM	5.8	0.92	2.18	0	2.2	5.9	6.0
AM	6.3	0.71	0.63	0	0.62	6.4	6.5

NOTES: 1. All voltages are measured from common positive (–) ground.
2. Volume control is at the minimum position.

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